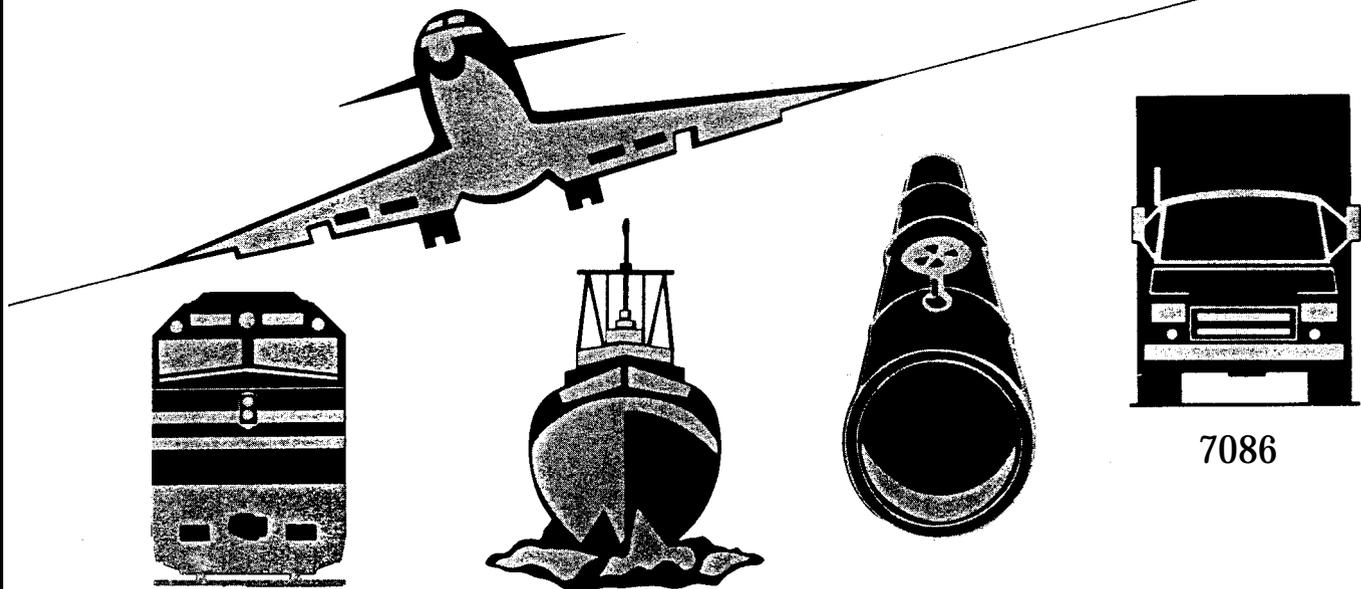


# NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

## HIGHWAY SPECIAL INVESTIGATION REPORT

TRANSIT BUS SAFETY OVERSIGHT



7086

**Abstract:** After the National Transportation Safety Board conducted several accident investigations involving transit buses (Normandy, Missouri; Cosmopolis, Washington; New York, New York; and Nashville, Tennessee) and held a public hearing on transit bus safety in March 1998, it found that substantial safety deficiencies and little Federal or State government safety oversight existed within the transit bus industry. During the public hearing, participants discussed transit agency self-regulation, the extent of Federal and State safety oversight, accident data, pupil transportation, and driver selection and qualification.

The findings from the public hearing and from the four accident investigations formed the basis for this special investigation report. The safety issues discussed in this report are the Federal and State safety oversight of transit bus operations, adequacy of transit bus accident data to identify potential safety issues, and safety program guidelines for transit operators.

As a result of its investigation, the National Transportation Safety Board issued recommendations to the U.S. Department of Transportation, American Public Transit Association, Community Transportation Association of America, and American Association of State Highway and Transportation Officials.

The National Transportation Safety Board is an independent Federal agency dedicated to promoting aviation, railroad, highway, marine, pipeline, and hazardous materials safety. Established in 1967, the agency is mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The Safety Board makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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# Highway Special Investigation Report

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## Transit Bus Safety Oversight

**NTSB/SIR-98/03**

**PB98-917006**

**Notation 7086**

**Adopted: November 17, 1998**



**National Transportation Safety Board  
490 L'Enfant Plaza, S.W.  
Washington, D.C. 20594**



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# Introduction

Recently, the National Transportation Safety Board has investigated transit bus<sup>1</sup> accidents in Normandy, Missouri; Cosmopolis, Washington; New York, New York; and Nashville, Tennessee.<sup>2</sup> The Normandy, New York, and Nashville accidents exposed various operational deficiencies such as unqualified drivers, drivers with hazardous medical conditions, inadequate maintenance practices, and the operation of buses with mechanical defects. The Cosmopolis accident revealed that certain laws and school transportation safety operational practices are not applicable to transit operations.<sup>3</sup> Had these deficiencies been found during other types of bus operations,<sup>4</sup> which fall under Federal and State government safety regulations, sanctions could have been imposed, such as assessing fines, taking the buses out of service, or suspending the company operations. However, no such Federal regulations are in place for transit buses. Of the four accident locations, only New York conducts some type of oversight of transit bus operations.

As a result of the Normandy, Missouri, accident in which four pedestrians were killed and three injured, the Safety Board held a public hearing on March 3 and 4, 1998, to determine the extent of transit bus safety oversight. During the public hearing, witnesses representing State and Federal government agencies testified, as well as representatives from several transit agencies, member service organizations, and State associations. The participants in the hearing discussed transit agency self-regulation, the extent of Federal and State safety oversight, accident data, pupil transportation, and driver selection and qualification.

The findings from the public hearing and from the accident investigations form the basis for this special investigation report, which addresses the following safety issues:

- Federal and State safety oversight of transit bus operations,

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<sup>1</sup>Defined as a vehicle that operates primarily in local scheduled route service at lower speeds and frequently loads and unloads passengers. These buses are manufactured with space and accommodations, such as support bars or straps to use as hand-holds, for standing passengers. Transit bus operations are generally publicly funded.

<sup>2</sup>Highway Accident Summary Report – *Transit Bus Collision with Pedestrians, Normandy, Missouri, June 11, 1997* (NTSB/HAR-98/01/SUM); Highway Accident/Incident Summary Report – *Collision with a Pedestrian by a Utility Truck near Cosmopolis, Washington, November 26, 1996* (NTSB/HAR-97/01/SUM); and National Transportation Safety Board Accident Investigations – *Transit Bus Collision with Pedestrian in New York City, New York, October 2, 1997* (HWY98FH019) and *Transit Bus Collision with Multiple Vehicles in Nashville, Tennessee, August 31, 1998* (HWY98FH042).

<sup>3</sup>Laws that require traffic to stop for school buses that are loading or discharging students are not in effect for transit buses. A transit bus is neither painted yellow, equipped with stop arms or bars, nor required to have its driver ensure that children are safely out of the roadway after exiting the bus.

<sup>4</sup>Interstate motor coach or charter buses.

- adequacy of transit bus accident data to identify potential safety issues, and
- safety program guidelines for transit operators.

As a result of its investigation, the Safety Board makes safety recommendations to the U.S. Department of Transportation (DOT), the American Public Transit Association (APTA),<sup>5</sup> the Community Transportation Association of America (CTAA),<sup>6</sup> and the American Association of State Highway and Transportation Officials (AASHTO).<sup>7</sup>

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<sup>5</sup>A nonprofit organization that serves members of transit systems, rail systems, manufacturers, universities, and State departments of transportation. APTA has over 1,100 members, 400 of which are transit agencies that serve over 90 percent of the people who use public transportation in the United States and Canada. These transit agencies make approximately 13.5 million passenger trips per day on the bus system alone.

<sup>6</sup>A national organization that represents rural transit agencies.

<sup>7</sup>An advocate organization of multimodal and intermodal transportation that serves State departments of transportation, the DOT, and Congress to ensure safe transportation, mobility, and economic prosperity.

# Special Investigation

## Overview

After the Safety Board conducted several accident investigations involving transit buses and held a public hearing on transit bus safety in March 1998, it found that substantial safety deficiencies and little Federal or State government safety oversight exist within the transit bus industry. The Safety Board understands that the Federal Government is spending \$6.34 billion to subsidize the operation of transit agencies;<sup>8</sup> yet, its safety oversight of transit bus operations is essentially nonexistent. The public expects that transit bus operations, whether publicly owned or subsidized, are safe. The following accidents illustrate some of the deficiencies that contributed to the unsafe conditions at these transit agencies. The report will then discuss Federal oversight, accident data, State oversight, and, finally, industry safety programs.

### ***Normandy, Missouri***

In June 1997, a transit bus operated by a driver trainee encroached on the platform at a park-and-ride facility in Normandy and struck seven pedestrians, killing four and injuring three. The investigation of this accident highlighted the lack of effective safety oversight in the transit bus industry. The Normandy accident investigation revealed several operational deficiencies on the part of the transit bus agency, which included the operating of buses by unqualified drivers, incomplete driver files, excessive driver hours-of-service, and inadequate maintenance practices that resulted in the routine operation of buses with mechanical defects.

### ***Cosmopolis, Washington***

In November 1996, a Federal Transit Administration (FTA)-funded transit bus was being used in Cosmopolis primarily for the transportation of school children. A 10-year-old child had departed the northbound transit bus and was struck and killed by a southbound utility truck. This type of student transportation operation is permitted using FTA-funded equipment; although under Federal regulations, the bus cannot bear resemblance to the typical yellow school bus. Because transit buses are without distinguishable markings and safety equipment, such as the flashing lights and stop arm signals of school buses, the truckdriver was not required to stop for a transit bus during the loading and off-loading of students. This type of operation, while similar to that of a regular school bus, cannot provide comparable safety standards for protection of the

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<sup>8</sup>Of this amount, over \$2.5 billion is provided for transit bus operations.

transported children. Considering that millions of school age children are transported by transit buses each day, the Safety Board is concerned about the absence of safety oversight, either by the State or the Federal governments, in this growing segment of transit bus operations.

The Cosmopolis accident resulted in the issuance of Safety Recommendations H-97-26 and -27 to the DOT and Safety Recommendations H-97-28 through -30, respectively, to the National Association of State Directors of Pupil Transportation Services, APTA, and the CTAA. In these recommendations, the Safety Board urged that the organizations, working together, collect accident data involving school children riding on transit buses and determine the most appropriate means to ensure that school children riding on transit buses in tripper service<sup>9</sup> are afforded an equivalent level of operational safety as school children riding on school buses. Safety Recommendations H-97-26, -27, and -30 are classified “Open-Acceptable Response,” based on these organizations’ acknowledgement that they are planning, pending availability of funds, to conduct a study on the identification and collection of data involving school children riding transit buses. Even though the Safety Board has not received direct responses to Safety Recommendations H-97-28 and -29, the agencies receiving these recommendations were included in the response to Safety Recommendation H-97-30. In November 1998, the Safety Board sent follow-up letters to these organizations to elicit information on their participation in the study.

### ***New York City, New York***

In October 1997, a New York City Transit Authority (NYCTA) bus went out of control in downtown New York City after the busdriver suffered a seizure. After sideswiping another bus, the accident bus collided with four passenger cars, three pedestrians, a bicyclist, and multiple street fixtures before coming to rest against a building. The collisions resulted in one fatality, five injuries, and extensive property damage to the bus and the struck vehicles and objects. The 55-year-old busdriver died 2 weeks later from complications related to his preaccident medical condition.

The Safety Board found that the busdriver, while driving a bus under the influence of alcohol and drugs, had been involved in two injury-causing accidents<sup>10</sup> in the 15 years preceding the October 1997 accident. The busdriver had a history of alcoholism that contributed to the development of other medical complications, including seizures. Incidents at work related to the driver’s alcoholism led to repeated medical examinations, performed through the NYCTA Medical Services Division, at which rehabilitation sessions were recommended but never attended by the driver. The NYCTA Medical Services Division had knowledge that this driver’s medical history placed him at

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<sup>9</sup>Tripper service is defined as regularly scheduled mass transit transportation service, which is open to the public, and is designed or modified to accommodate the needs of school students and personnel, using various fare collections or subsidy systems.

<sup>10</sup>Both of these instances occurred before the FTA implemented its drug and alcohol program.

increased risk while driving, but the NYCTA did not recommend the medical disqualification of the driver. The Safety Board review of his medical records, maintained by the NYCTA, showed that the NYCTA probably should have indicated that this driver should not be medically certified to drive a bus, based on the State of New York Special Requirements for Bus Drivers (Commissioner's Regulations Part 6).<sup>11</sup> Although the policies and procedures to conduct medical examinations were followed, no analysis of the results of the medical procedures was conducted by the NYCTA. This case emphasizes the need for action to be taken when safety hazards are identified through existing policies and procedures.

### ***Nashville, Tennessee***

On August 31, 1998, a Metropolitan Transit Authority (MTA) transit bus in Nashville drove through two consecutive intersections with red signals in the downtown district. At the second signal, the bus hit a car, which had pulled into the intersection, then veered across the roadway and ran over a second car, killing two of the occupants. The busdriver was off his designated route and reportedly speeding at the time of the accident; however, he was not behind schedule. The busdriver had been reprimanded and suspended on at least two previous occasions before this accident for failing to follow the designated route. The busdriver had been diagnosed with hypertension and diabetes; these conditions were being treated through medication and diet. The Nashville MTA medical review officer had been apprised of these treatment efforts.

The bus was inspected, and the brakes were found to be out of adjustment. A maintenance inspection had been conducted 4 days before the accident, and the brakes were not readjusted at that time. In addition, a hole was found in the main air line for the brake system, which reduced the brake air pressure<sup>12</sup> and, thus, the brake efficiency. During the pretrip inspection, the busdriver should have observed this low air condition. (In reviewing the Nashville MTA maintenance operations, another bus that had been in a previous accident was found to have a cracked frame, and yet, it was still in service.)

Although the company had reprimanded the driver involved in the August 31 accident and was aware of his medical condition, it allowed him to drive a bus, which had an inadequate brake system, and, thereby, caused a situation to exist that resulted in an accident.

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<sup>11</sup>Physical qualifications for drivers to be considered in biennial examinations. (a) A person shall not drive a bus unless he or she is physically qualified to do so. (b) A person is physically qualified to drive a bus if he or she: (5) Has no established history or clinical diagnosis of a respiratory dysfunction likely to interfere with the ability to control or drive a bus safely; (8) Has no established history or clinical diagnosis of epilepsy or any other condition which is likely to cause loss of consciousness or any loss of ability to control a bus; (9) Has no mental, nervous, organic, or functional disease of psychiatric disorder likely to interfere with the ability to drive a bus safely; (13) Has no current clinical diagnosis of alcoholism.

<sup>12</sup>The pressure gauge on the dash read 105 psi; normal pressure is 120 psi.

## Federal Oversight of Transit Bus Operations

The above four accidents, which occurred in different parts of the country, highlight significant safety problems in the transit bus industry. The Safety Board is concerned that the Federal Government provides significant funding for public transit operations without ensuring adequate safety oversight.

### ***Federal Highway Administration***

Before 1984, the Federal Highway Administration (FHWA) had the authority to conduct safety oversight of transit bus operations. In 1984, the U.S. Congress passed the Motor Carrier Safety Act that specifically exempted passenger carrier operations that were part of Federal, State, or quasi-public operations. In May 1988, the FHWA issued a rulemaking, to the same effect as the 1984 act, including the same exemptions in the Federal Motor Carrier Safety Regulations<sup>13</sup> (FMCSR). The FHWA currently has no authority to perform any safety reviews or inspections of transit bus operations.

### ***Federal Transit Administration***

The FTA advised that its mission is “to provide leadership, technical assistance, and financial resources for safe, technologically advanced public transportation, which enhances all citizens’ mobility and accessibility, improves America’s communities and natural environment, and strengthens the national economy.”

The FTA Office of Safety and Security’s strategic goal is to “promote the public health and safety by working toward the elimination of transit-related deaths, injuries, property damage and the improvement of personal security and property protection.” It has a staff of eight employees and an annual budget of approximately \$5.5 million, of which \$3 million is used for the oversight programs.<sup>14</sup> Approximately \$2.5 million is used for national planning and research, including training and technical assistance on recommended safety standards, comprising seismic and fire safety, alternative fuels system safety plans, accident investigation, and standardization of safety equipment on buses.

The Federal Transportation Equity Act for the 21<sup>st</sup> Century authorized the FTA to distribute in FY98 and FY99, respectively, approximately \$4.64 and \$6.34 billion in Federal funding to transit operations. In 1998, approximately 40 percent of all funding was provided to the 5,250<sup>15</sup> transit bus operations; another 40 percent was provided to rail

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<sup>13</sup>Title 49 Code of Federal Regulations (CFR) Part 390.3(f)(2) exempts, with the exception of the recordkeeping requirements of Part 390.15, transportation performed by the Federal Government, a State or any political subdivision of a State, or an agency, established under a compact between States that has been approved by the U.S. Congress.

<sup>14</sup> Drug and Alcohol Testing Program and Rail Rapid Transit State Safety Oversight Program.

<sup>15</sup>This includes 550 urban transit operators, 1,100 rural transit operators, and 3,600 specialized services for the elderly and persons with disabilities.

rapid transit operations; and 20 percent was provided to new transit systems. According to the FTA, a similar percentage will probably be funded in 1999. This funding will be principally divided between formula grants and discretionary programs.<sup>16</sup> In 1998, about \$2.5 billion was disbursed through the formula grants to transit systems, communities, and cities. An additional \$2 billion was allotted for discretionary programs, which include fixed guide rails, bus modernization, new bus purchases, and the startup of new transit systems. The FTA also distributed \$91 million to communities for urban and transit planning.

**Safety Assessment Methods**—FTA officials stated that they have three methods to assess the safety of the transit bus agencies that receive Federal funding. However, none of these methods provides a comprehensive assessment of transit bus safety throughout the country or a remedy for any of the problems that may exist.

One method is the sharing of safety information among transit agencies, which enables the agencies to perform self-assessments of their operational safety. This information is composed of data that are reported annually to the FTA by each transit agency receiving Federal funds. Unfortunately, some of the data may be 2 years old before it is available and may not be accurate or sufficient for transit bus agencies to thoroughly compare the safety of their operations with those of other agencies (see “Transit Bus Accident Data” section).

Another method containing a safety component is a program of triennial reviews, which are employed to measure the responsible use of Federal funds. The reviews are legislated by Congress because of a concern that the FTA was not adequately monitoring the use of Federal funds. The FTA hires contractors to perform the triennial reviews of all (about 550 urban) transit agencies directly receiving Federal funds. (The other transit agencies receive Federal funding administered through the States.) The Office of Oversight within the Office of Program Management oversees the contractors. The Office of Safety and Security does not participate in the triennial review process.

In conducting the reviews, contractors go to each transit agency and ask questions to ascertain whether the transit agency is performing certain required functions. Subject questions include whether the agency is in compliance with the American Disabilities Act, the Buy America law, the Service Equity laws, and the Disadvantaged Business Enterprise regulations; and few questions concern transportation safety programs. The *1999 Triennial Handbook* used by the contractors contains the following safety-related questions:

- Does the grantee have a written system safety program plan? How is it implemented and managed?

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<sup>16</sup>Formula grants are based on a combination of population, population density, bus revenue miles, bus passenger miles, and operating costs. Discretionary funds are set aside annually by the U.S. Congress.

- What key safety issues has the grantee identified for this year and how are they being addressed?
- Does the system safety program plan include an emergency management plan? Does the grantee conduct periodic drills?
- What type of safety training does the grantee provide and to whom?
- Does the grantee have a safety awards program? Is there an active safety committee? To whom does the safety officer report?

The safety section of the handbook also notes that:

While FTA has no specific requirements for transit safety, FTA can conduct safety investigations when conditions of any facility, equipment, or manner of operation appear to create a serious hazard of death or injury. FTA is concerned about the safety of both transit passengers and transit workers and encourages grantees to develop a written system safety program plan. These questions are intended to provide an overall understanding of how safety is incorporated into the organization, what kind of emphasis is placed on safety training, what the general safety record of the grantee is, and what areas of emphasis the grantee has with regard to safety. Guidance on the development of a written bus transit system safety program plan is available in an APTA publication entitled, *Manual for the Development of Bus Transit System Safety Program Plans, 1998*.

The contractor makes no assessment of the effectiveness of the safety programs at the transit agency. Transit funding is not dependent on the results of the responses to the safety questions posed during the triennial review.

Under 49 *United States Code (U.S.C.)* Section 5329, "Investigation of Safety Hazards," should a serious hazard be reported to the FTA, DOT funds may be withheld from a transit agency. In the last 30 years, the FTA has conducted only three investigations under this statute. Two investigations were prompted by congressional requests; the third was prompted by union complaints. One investigation in New York resulted in the disbursement of an additional \$17 million of Federal funds to correct 56 identified conditions of concern.<sup>17</sup> The other two investigations resulted in the requirement for the transit agency to change the unsafe conditions within a specified period of time. No funding has ever been withheld from transit agencies under this statute.

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<sup>17</sup>In the transit bus operations, these included the lack of a system safety plan, comprehensive control of busdrivers, and technical resources; inadequate data; and poor corporate culture and management.

**Safety Hazard Identification**—The FTA has two programs to identify safety problems that may exist within transit agencies. The drug and alcohol testing program is applicable to all transit agencies directly receiving Federal funds, and the State Safety Oversight Program is only applicable to those agencies conducting rail rapid transit operations.

The FTA began its drug and alcohol testing program of safety sensitive transportation employees in 1997 and has since audited 35 transit systems. Each of these program areas is treated separately. Since the inception of the alcohol program, the FTA has reduced the testing requirement from 25 to 10 percent because the data collected during the audits indicated a small number of positive results. Testing for drugs remains at 50 percent. If a transit bus agency does not comply, under 49 *U.S.C.* Section 5331, “Omnibus Transportation Employee Testing Act,” the FTA is authorized to withhold Federal funds. However, as of September 15, 1998, no funds have been withheld.

As a result of a Safety Board safety study and an accident investigation of rail rapid transit vehicles,<sup>18</sup> the Board has made safety recommendations to the FTA for rail rapid transit operations regarding safety oversight.<sup>19</sup> The FTA has begun to implement these recommendations to improve the safety of rail rapid transit operations. Through the State Safety Oversight Program for rail rapid transit,<sup>20</sup> Congress has authorized the FTA to withhold up to 5 percent of the urbanized area formula funds for the entire State if the State does not initiate a safety oversight program for rail rapid transit operations. However, according to FTA testimony during the March 1998 public hearing, no sanctions are applied if a rail rapid transit system’s safety plan proves deficient. On two occasions, the FTA has used its authority to withhold funds for the lack of State oversight of rail rapid transit systems.<sup>21</sup> Because the FTA has only recently required the States to perform rail rapid transit oversight duties, the FTA believes that it has no basis for the merits of extending that role to other modes of transit operations. The success of the State Safety Oversight Program for rail rapid transit is being audited this fiscal year.

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<sup>18</sup>National Transportation Safety Board Safety Study – *Oversight of Rail Rapid Transit Safety, July 23, 1991* (NTSB/SS-91/02) and Railroad Accident Report – *Collision and Derailment of Maryland Rail Commuter (MARC) Train 286 and National Railroad Passenger Corporation (Amtrak) Train 29 near Silver Spring, Maryland, February 16, 1996* (NTSB/RAR-97/02).

<sup>19</sup>Safety Recommendations R-91-33 through -35, respectively, to the Urban Mass Transportation Administration ([UMTA], now the FTA) and R-97-22 to the FTA: “Document and evaluate the effectiveness of existing State oversight activities of rail rapid transit safety and develop guidelines for use by State and local governments that address the critical elements of an effective oversight program;” “Monitor safety oversight programs implemented by the State and local governments to determine that the elements of an effective program are in place, that adequate financial resources are available, and that the mechanism through which the oversight is being accomplished is appropriate given the nature of the particular transit system;” “Use funding authority to ensure independent and effective safety oversight for UMTA-funded projects and UMTA-assisted systems;” and “Revise the grant application process to require a comprehensive failure modes and effects analysis, including a human factors analysis, be provided for all federally funded transit projects that are directly related to the transport of passengers.” The status of these recommendations is “Closed-Acceptable Action” for Safety Recommendations R-91-33 through -35 and “Open-Acceptable Response” for Safety Recommendation R-97-22.

<sup>20</sup>Title 49 CFR Part 659.7 – “Withholding of Funds for Non-compliance.”

<sup>21</sup>Michigan and Georgia currently do not have a safety oversight program for rail rapid transit.

According to the FTA, its primary role is to provide capital for operational assistance to transit programs. The Safety Board is concerned that funding is occurring without any reasonable checks to ensure that Federal funds are being used in the public's best interest and that the public's safety on transit buses is not being compromised. The FTA considers its primary responsibility to be the disbursement of Federal funds and, as such, engages in a cooperative partnership with the transit industry. The FTA stated at the public hearing that it has traditionally looked either to State regulation, if it exists, or to self-regulation by the transit industry to safeguard the public's use of these transportation systems.

Although the FTA has the methods described above to ensure safety, none are focused specifically on safe operations within transit bus agencies. For the FTA to have an effective safety oversight program, it would need to ensure that 1) safety plans are required and implemented, 2) the Office of Safety and Security is included in the triennial review process to ensure that safety plans are complete and in use for all fund-recipient operations, and 3) all safety deficiencies are corrected within transit bus agencies. The Safety Board concludes that the FTA is currently unable to identify situations that may lead to unsafe conditions on buses for the traveling public or to resolve any unsafe conditions because of a lack of effective safety oversight and enforcement. The Safety Board, therefore, believes that the DOT should develop and implement an oversight program to assess and ensure the safety of transit bus operations that receive Federal funding.

## **Transit Bus Accident Data**

### ***Federal Transit Administration***

Before 1990, the FTA did not collect data on transit bus operations; only data on rail rapid transit were collected. Currently, however, all public transit agencies receiving direct Federal assistance under the FTA's formula program must report accident data to retain eligibility for Federal funds. The FTA accident data only contain the number of fatalities, injuries, and incidents in the given year,<sup>22</sup> and, therefore, this accident data can only be used to establish numeric trends in the occurrences of fatalities that result from noncollisions and from collisions with vehicles, objects, and people. The FTA requires the reporting of transit bus incidents that meet the following criteria:

- any event involving property damage exceeding \$1,000;
- any incident requiring medical treatment of a passenger or an employee, either on site or in a hospital; or
- any fatality resulting from the event occurring within 30 days.

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<sup>22</sup>The FTA plans to publish a Notice of Proposed Rulemaking to expand the data fields collected.

The FTA obtains summary accounts from the transit operators, who report data for their previous fiscal year, which vary across transit agencies. The FTA, however, reports the data by calendar year. By the time the FTA collects and collates the data for a report, it is almost 2 years old.

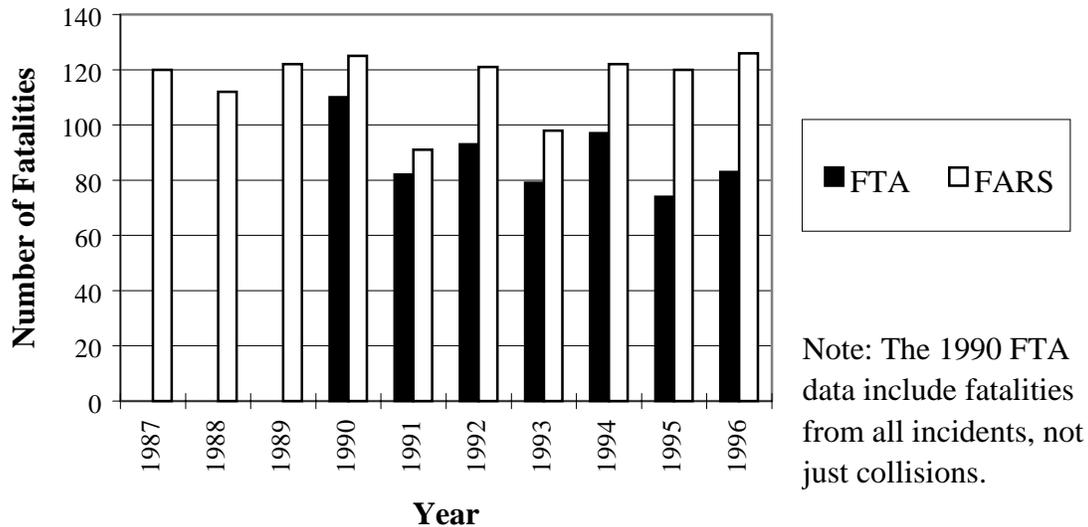
Because of the different reporting timetables allowed by the FTA, accident data from transit agencies are routinely being discounted from the FTA statistical database. The extent of these errors was emphasized when an FTA witness testified, “We have a number of instances where they’re [transit agencies] so late in reporting for a given year that we cannot incorporate it in a given year’s document, in which case we don’t report it at all so we don’t skew anything.” Further, the FTA has determined that, for unknown reasons, data are routinely reported incorrectly, as the witness continued, “We probably have about eight instances a year where our validation checks suggest that perhaps they [transit agencies] were entering the data incorrectly for one reason or another.” The FTA does not exercise any penalties, such as the withholding of funds, for incorrect or improper accident reporting submitted by transit agencies.

### ***National Highway Traffic Safety Administration***

The National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS) only collects accident data that involve fatalities. In the FARS database, an accident must involve a motor vehicle traveling on a roadway open to the public and result in the death of a person, either an occupant of a vehicle or a nonmotorist, within 30 days of the accident. FARS is based on police reports, medical examiner and death records, and other reports, which are related by calendar year. Each accident maintained in FARS has more than 100 coded data elements that characterize the accident, the vehicles, and the people involved in fatal accidents.

NHTSA also has the General Estimates System (GES), which contains a random sampling of police-reported crashes. The GES data are neither limited to fatal accidents, like FARS, nor inclusive of all accidents.

In 1996, the FARS database reported 126 fatalities in transit bus collisions (5 of these were passengers on a transit bus; the others were either pedestrians or people in other vehicles). That same year, the FTA reported 83 fatalities in transit bus accidents (it is impossible to determine where the fatal injuries occurred based on the FTA data). (See figure 1.) The FTA has maintained that the number of transit bus fatalities has steadily decreased; however, the FARS data indicate that the number of fatalities has not decreased. The differences in the number of fatalities may be explained by the differences in the databases.



**Figure 1. FTA and FARS data on fatalities due to transit bus collisions between 1987 and 1996**

The FTA fatality data also are not as comprehensive as FARS data and lack a tracking program for injury severity, contributing factors, vehicle actions, driver actions, or other safety-related factors. Still, the FTA data provide more accurate injury counts for accidents than do the FARS data. FARS does not present all injury data, only that injury data for people involved in a fatal accident.

### ***Federal Highway Administration***

The FHWA collects bus accident data from State and local enforcement agencies. However, FHWA representatives testified during the hearing that approximately one-third of this data is not reported to the database by State or local enforcement personnel and that the data do not distinguish between transit and other types of buses.

### ***Transit Bus Industry***

Bi-State Development Agency (St. Louis, Missouri) and New Jersey Transit (NJT) representatives testified during the public hearing that they retain their own statistics regarding collisions and other related safety matters, in addition to those submitted to the FTA. These data are analyzed and maintained for in-house use by their respective safety departments to evaluate agency operations. The representatives testified that the reports generated by these data include more detailed accident information than do those reports required by the FTA.

As discussed above, the reporting and collection system that the FTA is using lends itself to discrepancies in the FTA final reports. The FTA data also are of limited value, can be used only to identify numeric trends of transit bus accidents, and are not useable to identify the underlying causes of or contributing factors to these trends. Therefore, the Safety Board concludes that the accident data presented by the FTA, NHTSA, and the FHWA do not accurately portray the transit bus industry's safety record due to the data limitations of each and, in the case of the FTA, the lack of timeliness. In addition, the Safety Board concludes that the lack of accurate and sufficient data within the transit bus industry prevents a thorough assessment of transit bus safety. Consequently, the Safety Board believes that the DOT should collect accurate, timely, and sufficient data so that thorough assessments can be made relating to transit bus safety. Furthermore, the Safety Board believes that as part of the oversight program, the DOT should evaluate the collected data to identify the underlying causes of transit bus accidents that could lead to the identification of safety deficiencies at transit agencies.

## State Oversight of Transit Bus Operations

Representatives from Missouri and Texas, two States that do not provide safety oversight of transit bus operations, and California and New York, two States that actively provide safety oversight of transit bus operations, testified during the March 1998 public hearing. In addition, a representative from the NJT testified about the New Jersey regulations.

Missouri and Texas both regulate charter bus operations and, through FTA mandates, rail rapid transit operations.<sup>23</sup> These States' legislatures, however, have not provided the authority to regulate the safety of transit bus operations.

The California Motor Carrier Safety Operations Program has the safety oversight for all bus operations within the State, including those operated by transit agencies. In New York, the New York Public Transportation Safety Board oversees any transit agency receiving State operating assistance<sup>24</sup> and, additionally, makes recommendations on safety issues.

The New Jersey Department of Transportation regulates both hours-of-service and vehicle inspections. The NJT is required to inspect and maintain its buses to meet the FMCSRs.

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<sup>23</sup>Under 49 CFR Part 659, the mandate covers safety oversight of rail rapid transit operations as a condition of a State receiving Federal funding only for the rail-related portion of bimodal transit agencies and does not apply to any rail operations subject to the regulatory control of the Federal Railroad Administration.

<sup>24</sup>In 1997, the New York Department of Transportation provided approximately \$1.4 billion in operating assistance to about 125 transit agencies.

The FTA does not interact with any of the States' agencies that perform safety oversight functions; therefore, the FTA would be unaware of any existing safety problem. In addition, the FTA has no direct association with rural transit operators and provides funds through the States for disbursement to these agencies.

## Other Safety Programs

Although safety programs at the Federal level are essentially nonexistent and the State programs vary, APTA has developed two programs to provide for safe operations at its member transit agencies. However, these programs are not available to all transit agencies (only to APTA membership, which is less than 10 percent of all transit agencies) and have a fee associated with them.

APTA has drafted the Bus Safety Management Program (BSMP), a system safety program that will be applicable to transit bus operations, as well as the *Manual for the Development of Bus Transit System Safety Program Plans*. The BSMP is similar to the APTA rail rapid transit system safety program, on which the FTA State Safety Oversight of Rail Fixed Guideway Systems Program was modeled. (The MTA in Harris County, Texas, was evaluating the BSMP at the time of the public hearing.) The BSMP will help transit agencies set up a safety program in conformance with the *Manual for the Development of Bus Transit System Safety Program Plans*. APTA will then examine each system safety program on a triennial basis and evaluate whether the transit agency has:

- a system safety program plan that is in conformance with the APTA *Manual for the Development of Bus Transit System Safety Program Plans*.
- its system safety program plan fully implemented.
- conducted an internal safety audit program to identify, track, and resolve safety program deficiencies.

Although a transit bus agency will be required to pay a fee, between \$9,000 and \$15,200 (based on size), to initiate the program, APTA anticipates almost full participation in the BSMP by its transit agency members. However, compliance with the safety oversight of operations will still be the responsibility of the individual transit agency, even with the implementation of the BSMP.

In 1993, APTA conducted a survey of the hiring practices of various transit agencies because of concerns within the transit industry about the ratio of accident and employee-retention rates of newly hired drivers compared with experienced drivers. Over 100 agencies responded to the survey, resulting in the APTA conclusion that the then-existing recruiting and hiring practices were extremely diverse. In December 1994, APTA published the final report *Bus Operator Selection System*<sup>25</sup> (BOSS), which details a

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<sup>25</sup> APTA contracted Landy Jacobs, Inc., a human resource consulting firm based in State College,

selection system that could be adopted by a transit agency and allow the recruitment of drivers who would be more likely to maintain a stable attendance and employment record. In addition to employment stability, according to APTA, this system would also reduce the accident rates typically experienced with new operators, as has been encountered by those transit agencies that evaluated the system.

Since its inception, BOSS has been implemented at 31 agencies, including the NYCTA, and numerous agencies are in the process of implementing this selection system. According to APTA testimony at the public hearing, program start-up requires a major commitment on the part of the transit agency to internally probe its processes and to involve its human resource and operations people in preparing for implementation. Additionally, the BOSS program has a cost factor associated with it for the ongoing support of the consultant who developed it. APTA believes that because of these factors, the BOSS program will probably require time to be universally accepted and applied but eventually all APTA transit agency members will use the program.

At the public hearing, the CTAA voiced its concern that the BOSS program primarily addresses the problems facing the APTA membership. The CTAA emphasized that New York City alone hires about 1,200 bus operators annually and the rural transit network nationwide totals only between 6,000 and 7,000 bus operators. The number difference in hiring demands results in different training and recruitment needs for smaller rural transit systems. The typical CTAA member employs a total of six busdrivers, whose employment involves low turnover and wages.<sup>26</sup> The CTAA also testified that because its members operate in rural areas, the labor market is limited and many of the operators believe that they are almost forced to hire the available drivers and then attempt to train them to be qualified safe bus operators.

While APTA has taken steps to ensure that uniform safety and qualifications will be applied to its member transit bus agencies, this only represents 10 percent of all transit agencies. Consequently, the Safety Board concludes that a model comprehensive safety program is not available for all transit bus agencies, only urban transit agencies that are members of APTA. Therefore, the Safety Board believes the DOT, APTA, the CTAA, and AASHTO, in cooperation, should develop a model comprehensive safety program(s) that is provided to all transit agencies.

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Pennsylvania, to develop this project.

<sup>26</sup> Approximately 10 percent of the CTAA's membership only pay their busdrivers minimum wage.

## Conclusions

1. The Federal Transit Administration is currently unable to identify situations that may lead to unsafe conditions on buses for the traveling public or to resolve any unsafe conditions because of a lack of effective safety oversight and enforcement.
2. The accident data presented by the Federal Transit Administration, the National Highway Traffic Safety Administration, and the Federal Highway Administration do not accurately portray the transit bus industry's safety record due to the data limitations of each and, in the case of the Federal Transit Administration, the lack of timeliness. The Federal Transit Administration data also are of limited value, can be used only to identify numeric trends of transit bus accidents, and are not useable to identify the underlying causes of or contributing factors to these trends.
3. The lack of accurate and sufficient data within the transit bus industry prevents a thorough assessment of transit bus safety.
4. A model comprehensive safety program is not available for all transit bus agencies, only urban transit agencies that are members of the American Public Transit Association.

## Recommendations

As a result of its special investigation, the National Transportation Safety Board makes the following safety recommendations:

**to the U.S. Department of Transportation:**

Develop and implement an oversight program to assess and ensure the safety of transit bus operations that receive Federal funding. (H-98-43)

Collect accurate, timely, and sufficient data so that thorough assessments can be made relating to transit bus safety. (H-98-44)

Evaluate the collected data, as part of the oversight program, to identify the underlying causes of transit bus accidents that could lead to the identification of safety deficiencies at transit agencies. (H-98-45)

Develop, in cooperation with the American Public Transit Association, the Community Transportation Association of America, and the American Association of State Highway and Transportation Officials, a model comprehensive safety program(s) and provide it to all transit agencies. (H-98-46)

**to the American Public Transit Association:**

Develop, in cooperation with the U.S. Department of Transportation, the Community Transportation Association of America, and the American Association of State Highway and Transportation Officials, a model comprehensive safety program(s). (H-98-47)

**to the Community Transportation Association of America:**

Develop, in cooperation with the U.S. Department of Transportation, the American Public Transit Association, and the American Association of State Highway and Transportation Officials, a model comprehensive safety program(s). (H-98-48)

**to the American Association of State Highway and Transportation Officials:**

Develop, in cooperation with the U.S. Department of Transportation, the American Public Transit Association, and the Community Transportation Association of America, a model comprehensive safety program(s). (H-98-49)

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**November 17, 1998**